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OCTOBER 21, 1891

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Garden and Forest.

Among the contents of next week's issue (No. 192) will be the following articles:

The Effect of Gardening upon the Mind.
EDITORIAL.

Village Improvement Societies.
EDITORIAL.

Senecio Heritieri. (Illustrated.)

Great Hill: A New American Country-Seat.—II.
By MRS. SCHUYLER VAN RENSSELAER.

A New Way to Preserve Fruit.
By EDWARD ATKINSON.

The paper will contain an illustration of Senecio Heritieri from a photograph.

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Forest Reservations.

WE have more than once called attention to the closing section of the act to repeal the timber culture laws which was approved on the 3d of March last. This section authorizes a distinct departure from the traditional policy of the Government with relation to the public forests by empowering the President, from time to time, to set apart reservations of timber lands in any state or territory wherever such public lands may be situated, and "to declare by proclamation the establishment of such reservations and the limits thereof." This power of the President has already been exercised to enlarge the boundaries of the Yellowstone and Yosemite reservations to the gratification of the great body of the people of the United States. There are many other portions of the national domain where the exercise of the executive power is quite as desirable. It is not to be presumed that the President will wield this new authority with which he is clothed without great caution, and, therefore, it is altogether fitting that citizens who are well informed and interested in these matters should recommend to him tracts of forest whose preservation seems to them essential to the welfare of the people.

We are glad to note, therefore, that a memorial has been presented to the President by the Honorable Edwin Willits, N. H. Egleston and Edward A. Bowers, representing the American Forestry Association, and by a committee of the American Association for the Advancement of Science, consisting of Professors E. W. Hilgard, C. E. Bessey, William Saunders, T. C. Mendenhall and B. E. Fernow. The memorial names five tracts for public reservation, each of which is described at some length, with the specification of its boundaries and the streams which take rise in them, together with the reasons offered for setting them apart and the names of those who have been active in urging the step. The memorialists wisely suggest, that, before definite action is taken, a more detailed examination should be made by the proper agencies in order to ascertain more fully what are the actual conditions, the best practicable boundaries, the arguments for and the objections to reserving these tracts, as well as those in other locations. They also state that such reservations cannot accomplish the object for which they are made without the inauguration of some strong and efficient administration which is capable of supplying local timber requirements, and at the same time of preventing depredations by lawless persons and desolation by fire, and the President, therefore, is requested not only to exercise his new right of reservation, but also his entire power under existing laws to protect this property and to urge whatever additional legislation may seem to him necessary for this end.

The first tract spoken of is that known as the Flat Head and Marias River Reservation. Its establishment was originally proposed in bills introduced by Senator Edmunds during the sessions of the Forty-eighth and Forty-ninth Congresses, which were passed by the Senate, in both cases, without dissent. This is a tract of some 7,000 square miles, covering both slopes of the Continental Divide in Montana, about the head-waters of the Flathead River, a stream which unites with the Missoula to form Clarke's Fork of the Columbia, and also including the head-waters of the Marias, the Teton and Sun rivers, which are affluents of the Missouri. This is an alpine tract of rugged peaks and deep gorges, where snows and glaciers are perpetual, and avalanches not infrequent. South of the middle fork of the Flathead River the western slope is covered with Fir, Spruce, Cedar, Pine and Larch, and north of this the mountains have been nearly stripped by fire. Innumerable streams, fed by the perpetual snows of the high ranges, furnish the bulk of the water-supply for the Flathead River, while the rivers on the eastern slope are of inestimable value for irrigation purposes before they reach the Missouri. All the land is now unsurveyed. If this forest-tract is obliterated by speculators and mill-men, who are now attacking it, no money can measure the disastrous results to our agriculture and commerce. If it is preserved, as proposed by the bill of Senator Edmunds, under the management of the Government the forests might be made a source of permanent income, and they would exert, for all time to come, a beneficient influence on two great rivers, and upon immense areas which only need irrigation to reward the labors of the husbandman.

The next tract is the Tulare Reservation, which covers also some 7,000 square miles along the western slope of the Sierra Nevada, enclosing the entire eastern watershed of the San Joaquin River and of the streams which flow into Tulare Lake. Petition for this reservation has been made by the California Academy of Science and by a convention of the citizens of Merced, Fresno, Tulare and Kern Counties. This is a mountainous tract, ranging from 2,000 to 12,000 feet high, with beautiful valleys and plateaus, and embracing a dozen groves of the famous Big Trees, besides the Pines, Firs and Spruces of the region. The memorialists ask for the establishment of this reservation so that those great natural wonders, the Sequoia groves, may be preserved, and because it is necessary to the maintenance of the water-supply in the valley, which is dependent largely upon irrigation for successful agriculture. Timber speculators are already recklessly cutting away the timber, and the sheep of herders are destroying the undergrowths, while frequent fires are carrying destruction over the forest-floor and obliterating vegetation of all kinds. The preservation of this forest seems to be necessary to this region, which has now been made fertile by irrigation, and which, in this way alone, can be kept from reverting once more to desert conditions.

The Surveyor-General of New Mexico and many of its citizens have advocated the Pecos River Reservation, about 575 square miles in extent, on the main Rocky Mountain Divide, and covering the Las Vegas and Santa Fé ranges. These two ranges enclose the basins of the Pecos

River with cañons, steep slopes and high peaks, one of which, Tuchas Peak, attains an altitude of 13,000 feet. The tract is not adapted to agricultural use, since its cañons are often filled with snow to a depth of fifty feet, which lies on the ground far into spring, precluding timely tillage. Although of little value for settlement, the reservation, if protected, would be a lasting source of benefit to a large region by furnishing a continued supply of wood and water, while if left to lawless invasion and unregulated appropriation the results would be correspondingly disastrous.

The Pike's Peak Reservation is asked for by the citizens of Colorado, by the Senators and Representatives of that state, and by its Forest Commission. It is situated in El Paso County, and embraces Pike's Peak, with its slopes, including an area of 357 square miles. Ranging from 7,000 to 14,000 feet in altitude, and furrowed by deep gorges, it is unfit for agricultural use, the few small parks adapted to grazing having been already taken, and it contains no valuable land to be withheld from settlement. Thirty thousand people now depend on this forest-area for their supply of timber and fuel, and here originate many streams which furnish water indispensable for hundreds of thousands of acres of land besides the water-supply of many thriving towns and communities in a country where water needs to be husbanded. These supplies are now threatened with extinction by loggers, who are cutting the timber illegally and wastefully, and a railroad which has recently been extended to the summit of the peak will insure its more rapid destruction. Besides this, Pike's Peak has rare attractions in its scenery, more than ten thousand tourists having visited it during the past year, and it should be preserved in its present wooded condition as one of the healthful and pleasurable places of resort in the great west.

We have already spoken of the Minnesota Reservation which is proposed at the extreme northern part of that state extending from the international boundary, including the head-waters of the Mississippi, and comprising some six millions of acres. The region is generally covered with forests of larger or smaller growth, but there are many lakes and marshes, and little of it is suited for agriculture. This fact makes its preservation advisable for productive forestry, as much of it is useless except for wood crops. Its preservation is also necessary to maintain a supply of water for the sources of the Mississippi and minor streams, and to preserve for adjacent farm-lands conditions of atmospheric humidity and protection against the cold winds of the north.

There need be little fear that too many forest-reservations will be set apart under this new law. The most we can hope is, that the woods, which now stand as a protecting cover to the highlands where a few of the tributaries of our great rivers have their source, may escape those attacks of man and beast which have already swept away the forests which were once doing the same beneficent service to many other streams. We are convinced that the question of forest-preservation is not surpassed in importance or urgency by any which has been or is likely to be brought in the near future to the notice of Congress. But the prospect of adequate legislation seems almost hopelessly remote. We trust, therefore, that the President may see his way clear to give favorable consideration to the letter and spirit of this memorial.

It is somewhat surprising and a very interesting fact that at Barnard College (the Woman's Department of Columbia College in this city) more students are enrolled in the botanical classes than in any others. The recently issued report of the institution shows that it numbers nineteen botany specials as against seven freshmen, twelve sophomores and seven chemistry specials.

When the college opened in the autumn of 1889 it possessed a well-equipped botanical laboratory, given by the Torrey Botanical Club. Two hundred dollars have since been given by Mr. C. Neustadt for the purposes of this laboratory, and it is under the competent direction of Dr. Emily L. Gregory, who is a graduate of Cornell University and holds her doctor's degree from the University of Zurich. "This laboratory," says the report, "opens to women special facilities, not found elsewhere in this country, for the study of the physiology and anatomy of plants through a systematic course, leading to the successive degrees given for similar work in other branches of science. The course includes two years of undergraduate work and two years of graduate work. There are now studying in this department nineteen students, three of whom are doing graduate work and will later enter upon the work of original research." That these young women are serious and well-prepared students is shown by the fact that, to be admitted to the departments of botany and chemistry, candidates must pass the regular entrance examination of the college, unless it is otherwise ordered in special cases, and that "a student taking the degree of Ph. D. in botany is supposed to have gone over the entire known ground of the science, to know what questions are yet to be solved and to have some practical knowledge of the methods of solving them, so she may be ready to make original investigations. The minor studies are taken," the report continues, "in order to insure a knowledge on collateral or cognate branches sufficient to enable her to grapple with the problems of the major subject," and these cognate studies include chemistry, zoölogy, physics and mathematics, while the candidate for a degree "is supposed to have a solid foundation of university studies already laid."

As regards the value of a thorough study of botany to young women the report quotes Dr. Gregory as saying: "Aside from its value in a purely intellectual way, it has a practical value in furnishing occupation, with remunerative salaries, to an increasing number of persons. One of these fields is that of pharmacy. Adulterations are constantly made in the use of drugs, and we are just learning the importance of a methodical study of the inner structure of plants. This also applies to the students of medicine, but more particularly to the pharmacist. A much wider field for trained botanists is found in our agricultural stations. In the Agricultural Department in Washington one of my former students is now doing work in mycology, and her position commands a good salary. The call for this work is the increasing devastation made by parasitical plants on our grains and food-plants. Before anything can be done to prevent failures in crops from rust, smut, blight and mildews, the nature and habits of the parasite plant must be known. Such investigations are made and the results published in journals, and the scientific advancement of the country may be marked by the number and worth of such publications. In every state these experimental stations have been started. The work of the botanist is such that a woman is specially fitted for it."

Great Hill: A New American Country-seat.—I.

The interesting letter which you recently published under the title "Gardening on the Shores of Buzzard's Bay," tempts me to write you a description of a country place in this same region which is remarkable because "gardening," in the usual acceptation of the term, has played no part in creating its beauty. It is, I am sure, one of the most attractive country-seats in New England, partly because of its size and its unusually fine situation, but largely because it has been developed out of wildness with so singular a degree of taste and so keen a feeling for the character which Nature had indicated. No one has been more in sympathy than I with the counsels so often given in Garden and Forest relative to the necessity of employing a landscape-gardener when a piece of wild nature is to be adapted to human habitation and given an artistic aspect. But there is no rule without its exceptions, and the place in question, belonging to Mr. Albert W. Nickerson, of Dedham, shows that while most men must be educated to the possession of taste, some are born with it, and are justified in dispensing with professional assistance. No hand but the owner's has touched Great Hill, and the result

is a domain whose beauty is as uncommon as it is striking, as natural as it is artistic.

If you look at a map of Buzzard's Bay you will see at its inner end, lying west of the arm into which the Wareham River flows, a promontory which is divided into two points by the deep indentation of Wing's Cove, the easterly one called Great Hill and the westerly, and longer, one called Sippican Neck. A few years ago Mr. Nickerson purchased a small hotel which stood near the extremity of Great Hill, so named, by the way, because, although the plateau it forms is only 127 feet above the sea, it is the highest ground in this neighborhood. To the land attached to this building Mr. Nickerson has gradually added until his property now covers some 1,500 acres, includes the whole of Great Hill, extends along the western shore of Wing's Cove, and, owing to the presence of the cove, boasts of some six miles of water-front. It is only a few weeks since I wrote for Garden and Forest a description of the way in which the land in this region has covered itself with forests, to the obliteration of the farms by which it once was occupied. Most of Mr. Nickerson's property, when it came into his hands, was a dense forest-growth, extending down to the water's edge, although here and there were open tracts still under cultivation. There was only one makeshift approach from the high-road to the house. Everything was to be done if a rough woodland was to be transformed into an agreeable summer residence. Fortunately, however, the man who had built the house had chosen exactly the best site, not on the actual point of the promontory, but on a broader projection toward the south-east, so that the view embraces the main expanse of Buzzard's Bay, and, as well, the long arm which runs up toward Wareham. And here he had set the house on exactly the right spot, just far enough away from the sea to leave wide foregrounds to east and south between house and water, and at the top of the slopes which thence run down to the narrow beaches. The house was left, outside, just as it stood, and now is manifestly out of keeping with its surroundings. But it is easier, one remembers, to rebuild a house than to recast an unfortunately treated landscape; and this landscape has been so well treated that, should an architect ever be called upon to rebuild, he will be very unintelligent if he fails to produce a wholly charming result.

The main approach to Great Hill is now from an entrance lying toward the north-west, on the road from Marion, and not far from the head of Wing's Cove, which, however, is hidden from view by the thick masses of the forest. Hence a finely constructed road, more than a mile and a quarter in length, leads to the house, gradually rising as it goes with perpetually varying curves, whose sinuosities, however, are never exaggerated, so that it seems to take the most natural way along the gentle ascent and between the closely pressing trees. The chief care bestowed upon the borders of the road was in the way of preservation; but along the edge of the macadam a border of turf, three or four inches wide, was laid. When I saw the road soon after its completion, five years ago, the artificial character of this little edging was apparent, but by the next summer it had become amalgamated with the natural growth of grass, wild flowers and shrubs. For a long distance after leaving the gate we drive in sun-streaked shadow beneath good-sized trees, chiefly White Pines, with occasionally a Pitch Pine, a Holly, a Swamp Maple, a Gray Birch, or a Cedar. In some places the undergrowth is low, giving a far view between the tree-trunks, but in others it forms masses of shrubbery from six to ten feet high, where Blueberries, Viburnums and Clethras, Wild Roses, Vines and young Sassafras-trees and Maples sweep the ground with their branches, while the finest feature of all is supplied by great full clumps of the shining evergreen Inkberry. Here and there these shrubberies fall back, leaving little grassy glades or vistas, with perhaps a big boulder or two, and sprinkled, now with red Lilies, and again with orange-colored Butterfly-weed or tall sprays of Golden-rod, Aster and Wild Sunflower. No one is allowed to break the shrubs or pick the flowers along the drives at Great Hill, wild though they are, and no one who sees their constant yet perpetually changing beauty thinks of wishing that a gardener had been allowed to "improve" them by any of his manipulations or additions. At one spot an unusually large White Pine accentuates a curve of the road; at another it is completely bridged, high overhead, by a slender drooping Birch, and at another a great old Cedar stands, almost dead but shrouded thick with hanging grief-moss—a figure of mortality which throws into strong relief the vigor of the life about it.

In one place the faintest glimmer of the waters of Wing's Cove may be caught through the trees. But the owner has had the right idea as regards the character of this drive, and has resisted many mistaken appeals to "open vistas" for the revelation of the sea. "This is a forest-road," he says; "you will see plenty of water when we get to it."

As one reaches higher ground, perhaps a third of a mile from the house, the soil becomes poorer, and bears chiefly smallish Oaks and Pitch Pines almost free from high undergrowth. Here on one side lies a large paddock for the horses and donkeys, and then at the end of a short straight stretch of rising road we come, facing eastward, suddenly out upon a very large, almost circular and sloping lawn with a wide stretch of blue water beyond it, and beyond this the low wooded line of the Wareham shore. Half-skirting the lawn to the right we are brought to the house; and from there, following the road as it passes between the lawn and another slope descending to the sea, it takes us out of the place again along a "sea-drive" about a mile in length.

It seems almost a pity that we had not approached the house by this second drive; for, although it is beautiful driving in either direction, it is, of course, most beautiful when our faces, not our backs, are turned to the south and the open bay. It runs close to the irregular margin of the water on one side, now skirting little white beaches and now border-like masses of low shrubs and clambering vines, from which rise occasional tall Pines or Cedars, while the forest on the landward side opens at intervals into broad grassy stretches, probably the remains of formerly cultivated fields. One of these wide pastures, almost square in shape, is especially beautiful, thickly surrounded by trees, but itself wholly unbroken save by a group of tall, graceful Birches that stands close to the roadway. Occasional pools of water also diversify this drive, as richly clothed along their edges as, I think, only the pools of this particular region ever are. Nothing but the road itself betrays the touch of art except one of these pools which, to protect the road, had to be kept within bounds by a stone curbing. Certain observers, struck by its unlikeness to its surroundings, ask why it was made of a regular oval shape and edged with symmetrically cut stone. But the owner replies that one can't make a curbed basin look really natural, and when a thing must look artificial it ought simply and plainly to confess its character. The result confirms his view, for one realizes that some necessity prescribed this treatment of the spring-hole, and, lying so close to the road, it does not strike an inharmonious note.

Marion, Mass. *M. G. Van Rensselaer.*

Seedling Almonds in California.

THE Almond groves are now one of the most charming features of many of the foot-hill districts of central California, and, when in bloom, are as fragrant and beautiful as the orange groves of the southern counties. Indeed, there is no more attractive time than the flowering time of the Almond for a visitor to go to the great centres of the fruit-industry. The Almond, it is true, comes first, and is followed in rapid succession by the Cherry, Peach and other fruit-trees. But the Almond is peculiarly fresh and lovely in its season; its petals fairly cover the grass, and are blown far across the highways in blush-tinted drifts.

One must get out of the fog belt to find the successful Almond-orchards. Niles, Livermore, Santa Clara, Los Gatos, Gilroy, to the east and south of San Francisco Bay; Sonoma, Santa Rosa, Suisun, to the north and north-east. The tree will grow almost anywhere, but it will not bear except in mild and sheltered situations. A few years ago ill-advised Almond-planting brought about a reaction, and numbers of orchards on poor soil, or too much exposed to sea-fogs and winds, were cut down for fire-wood. In the real Almond districts, however, no tree is more sure to pay well, one year with another.

California growers have originated many new and very desirable varieties of the Almond; with no other fruit or nut have the older varieties been so completely abandoned in new plantations. The Languedoc varieties, introduced into California as early as 1853, and later French importations, are now superseded by seedlings of local origin, some of them well worthy of trial by the great nurserymen of France, Spain, and Italy. Larger and better nuts, heavier crops and a greater degree of hardiness are the advantages of the California seedlings. Some of them yield nuts which bring, in the market, two or three cents a pound more than the standard imported varieties.

The leading grower of new kinds, A. T. Hatch, of Solano County, once exhibited 192 varieties of promise, four of which are now recognized as commercial sorts, and are being planted by tens of thousands all over the state. Professor E. J. Wickson, in his *California Fruits* (1889), mentions sixteen California

seedlings that are now standard varieties, and several more have come into prominence since.

It is interesting to note that, although California is now producing a great number of valuable new varieties of all the standard fruits, the Almond alone has so far improved that the older kinds are practically given up, and now can only be found in a few gardens. The same tendency is to be seen in the Peach, Apple, Pear, Apricot and Walnut, but in the case of these fruits many of the old standards still retain places in the front rank. Horticultural history must record the fact that California first originated an entirely new line of market varieties in the Almond.

The variety that I have chosen to illustrate (see page 499) is one of Lewellyn's seedlings, originating some years ago in Napa County, and considered by some growers the best bearing Almond known to orchardists. It is hardly in the general market yet, but all who have seen the orchard speak well of the variety, and it is being planted extensively. The branch from which the photograph was taken was smaller and somewhat less heavily loaded than many on the tree, and several almonds were broken from it before it reached the hands of the photographer. But it is a fair illustration of the vigor and fruitfulness of the whole race of California seedlings. It was cut from a five-year-old tree planted on a warm gravelly loam in Livermore Valley, and grown without the aid of irrigation. There was a fair crop in 1889, when the trees were four years from the bud; a large crop in 1890, the season when the photograph was taken, and a still larger crop is now ripening. Like the best of the California seedlings, it bears regularly every year.

Niles, Cal. *Charles Howard Shinn.*

A Clematis Borer (Acalthoë caudata).

A DESCRIPTION of this moth was first given by the late Dr. T. W. Harris, author of "Insects Injurious to Vegetation in Massachusetts." The original account of the moth, which he named *Ægeria caudata*, was given in *The American Journal of Science* (vol. xxxvi., 1839).

Without naming it, he refers to the insect in his volume on injurious insects, and again, in a letter to the late Dr. Le Baron, he speaks of taking a male specimen at Jackson, in the White Mountains of New Hampshire ("Correspondence," page 262). Dr. Harris has recorded that he found the eggs on Clematis, but no further account of the earlier stages is given nor of the injuries caused; and, although other authors have since written accounts of the Ægerians and have quoted Harris, nothing has been added to the facts given by him.

In the spring of 1890 it became necessary to move an old specimen plant of the Virgin's Bower (*Clematis Virginiana*) in the shrub collection of the Arboretum, and then it was found that the whole mass of roots at the crown and the bases of the stems had been bored and hollowed out by lepidopterous larvæ, a few of which were secured alive. These were kept, and on July 25th a female moth emerged, which proved these borers to be of the same species described by Harris. An examination of many other plants of the Virgin's Bower in the Arboretum and vicinity showed that almost every plant was more or less infested, a fact which fully accounted for a very apparent lack of vigor in this usually rampant-growing species. The borers attack the larger roots near the surface, infest the crown, and often enter into the larger stems, especially where these trail on the ground.

In June, larvæ of various sizes, from one-third to fully grown, may be found in the infested plants. The fully grown borer is about two-thirds of an inch in length and of a dull white color. The legs are brownish. On each side of the body there is a row of very minute brown dots placed singly on each segment, and a magnifying-glass shows several rows of solitary hairs along the body. The head is brown, and the top of the segment behind it is of a very light brown color, with two darker-colored club-shaped or spindle-shaped spots, the larger ends of which almost touch each other at the back of the segment, while the points are directed downward toward the sides of the head.

In the latter part of June or in July the fully grown larva makes a slight cocoon of silk, mixed with small particles of the wood or other material, and changes to a brown chrysalis, which is provided with a number of minute spines. These spines are largest on the last segments, and by their aid the chrysalis is enabled to force its way to the open air when the moth is about to emerge. Apparently the moths begin to emerge in the last days of July, and the eggs are deposited on Clematis soon afterward.

The male is remarkable for possessing a curious tail-like appendage, nearly, if not quite, as long as the abdomen. The general color of the insect is brown. In the male the fore wings are transparent from the base to the middle; hind wings transparent, but with a brownish fringe and subcostal spot. Antennæ, palpi, collar and tarsi tawny yellow; hind legs yellow, end of tibiæ and first tarsal-joints fringed with tawny yellow and black hairs. Tail slender, cylindrical, nearly as long as the body, tawny yellow, with a little black tuft on each side at base.

The female moth has the fore wings entirely black (opaque). The hind legs are black, with a rusty spot in the middle of the tibiæ, and fringed with black; and the caudal tuft is short, and such as is ordinarily seen in moths of this class. The female is larger than the male, and its wings expand from one to one and a quarter inches.

Besides Clematis, Dr. Harris gave our common wild Black Currant (*Ribes floridum*) as another food-plant, the larvæ living within the stems. Other writers have quoted this statement, but a careful examination of Currant-bushes growing among infested Clematis in the Arboretum failed to show any evidence of attack by the Clematis borer.

It has not been definitely ascertained how long a period is necessary for the larva to attain full growth, and no experiments have been made toward curing or preventing the attacks. Such treatment as is given in the case of the well-known Peach-tree borer would probably answer for this.

As yet no other species of Clematis except our Virgin's Bower has been found attacked at the Arboretum.

The accompanying figures are from drawings by Mr. C. E. Faxon.

Arnold Arboretum. *J. G. Jack.*

New or Little-known Plants.

New Orchids.

Pholidota repens, Rolfe, is a small species, with light flesh-colored flowers, sent to Kew by Mr. James O'Brien, in June, 1890, and again during the present year. It is a native of some of the hills of India. It is allied to *P. Griffithii*, Hook. f., of which it may be an unusually procumbent variety with differently colored flowers.—*Kew Bulletin*, 1891, p. 199.

Epidendrum Mooreanum, Rolfe, is a very pretty species belonging to the section *Encyclium*, and allied to *E. stellatum*, Lindl. The flowers are very fragrant, the sepals and petals light green, and the lip deep purple with light green margin. It is said to be a native of Costa Rica, and exists in several collections, having been sent to Kew for determination by Mr. F. W. Moore, of Glasnevin, Mr. W. Bull, Messrs. Hugh Low & Co., and Sir Trevor Lawrence. —*Kew Bulletin*, 1891, p. 199.

Polystachya bulbophylloides, Rolfe, is a minute and very anomalous species, with the habit precisely of Bulbophyllum. It is a native of west Africa, and was sent to Kew by Mr. J. O'Brien in July of the present year. The small diphyllous pseudo-bulbs are borne at intervals on slender creeping rhizomes. The flowers are white, except two orange spots on the lip and a purple margin to the column. The petals are reduced to a pair of minute fleshy tubercles, another anomalous character.—*Kew Bulletin*, 1891, p. 199.

Renanthera Ims-chootiana, Rolfe, is a handsome species allied to *R. coccinea*, Lour., and *R. Storiei*, Rchb. f., but with flowers in simple racemes and various structural differences. It was sent to Kew by M. A. Vanimschoot, of Ghent, Belgium, during July of the present year, with the information that it was received with *Ærides Godefroyæ*, Rchb. f., from Messrs. F. Sander & Co., of St. Albans, and is believed to be a native of the same country. The flowers are chiefly of a reddish vermilion shade.—*Kew Bulletin*, 1891, p. 200.

Pelexia olivacea, Rolfe, is a native of the Andes, sent to Kew by Messrs. Charlesworth, Shuttleworth & Co., of Heaton, Bradford, in April, 1890, where it flowered about a year later. It is one of those plants formerly referred to Neottia, though erroneously. The leaves are dull olive-green, with a broad, irregular, silvery band on either side of the midrib; the scape, ovary and sepals are also olive-green; the petals and lip white, with some yellow on the

mouth of the tube, formed by the union of the column with the stalk of the lip.—*Kew Bulletin*, 1891, p. 200.

Lælia grandis, var. tenebrosa, Hort.—This is a very distinct and handsome variety of *Lælia grandis*, which originally appeared with H. Tate, Esq., of Allerton Beeches, near Liverpool, in May, 1889, and appears to have been first introduced by Monsieur Travassos from a new district in Brazil. It has since flowered in several other collections. The segments are flatter than in the original form, less undulate, and of a decided copper-bronze tint, while the lip is purple, somewhat darker in the throat, and with a white margin. —*Gardeners' Chronicle*, August 1st, p. 126; *Lindenia*, t. 290.

Odontoglossum Hennisii, Rolfe.—A very elegant little Odontoglossum, sent to Messrs. Charlesworth, Shuttleworth & Co., of Heaton, Bradford, from Ecuador or Peru by their collector, Mr. W. Hennis, after whom it is named. In size and color it resembles *O. odoratum*, Lindl., but its real affinity is with *O. crinatum*, Rchb. f., which has a very similar lip. This organ is three-lobed, white marked with reddish brown, the side lobes rounded, the front one longer and acuminate, and the disk consisting of numerous hair-like filaments. The sepals and petals are yellow, barred with brown.—*Gardeners' Chronicle*, August 8th, p. 158.

Kew. *R. A. Rolfe.*

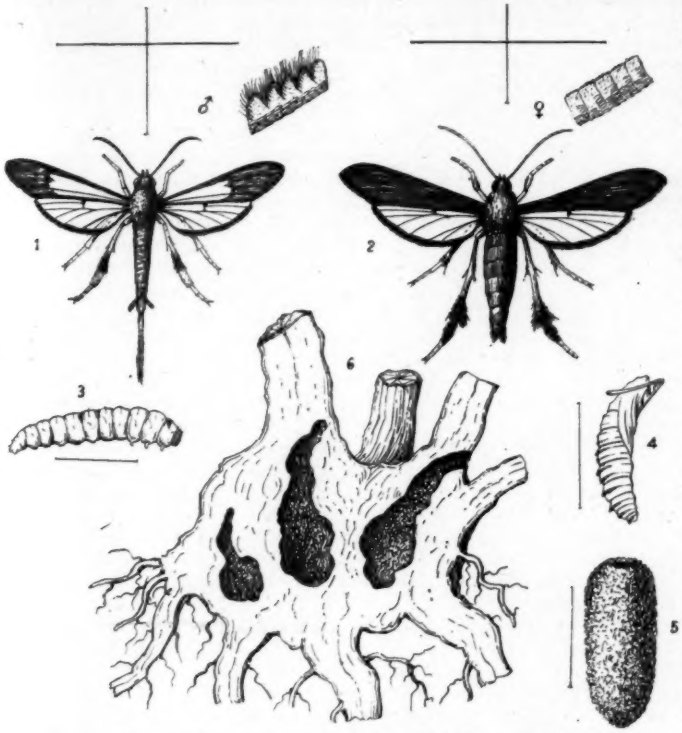

Fig. 77.—A Clematis Borer (*Acalthoë caudata*).—See page 496.

Figs. 1 and 2. Male and female, with highly magnified sections of their antennæ. 4. Pupa. 5. Cocoon. 6. Section of part of injured root.

Foreign Correspondence.

London Letter.

We have had more bright sunshine in England during September than in any month this year, which, so far, has been decidedly bad for horticulture. But sunshine came at last, and it has done a great deal of good. The garden now is beautiful with yellow Sunflowers of all kinds, purple Asters, tall fragrant Lilies and many-colored Dahlias. In some few places the pretty Crocuses proper, with their mimics, the Colchicums, make the lawns, rock-garden and lake-side gay with purple color. Even the Pelargoniums are bright with flowers, and the Roses were never better. September and October bring many rich color-effects both of flower, leaf and fruit in a well-made garden. I have often wondered that the really beautiful autumn-flowering species of Crocus have not yet been properly "discovered" and taken in hand by horticulturists generally. At Kew there are beds set apart for them, not much space certainly—in fact, only just sufficient for the plants to show what they could do if they were used for the production of effect in autumn as the spring-flowering species are used now. They may be had in small quantities from the bulb-growers, and propagated just as easily as the common garden kinds. Colchicums are quite as useful as the best of Crocuses. In England one may see meadows spread over with the rich purple of the native species, *C. autumnale*, the Meadow Saffron. It is also a favorite garden-plant with a few who can appreciate the beauty of our native plants when cultivated in the garden. The English Crocus (*C. nudiflorus*) is also abundant in fields and meadows, and is often mistaken for the Meadow Saffron from its flowering at the same time and growing in similar situations, as well as from the resemblance between the flowers of the two.

Among exotic species of both genera there are many that deserve a large place in every garden. Of Colchicums there are *C. speciosum*, from the Caucasus, with flowers as large as a wine-glass; *C. Parkinsoni*, with purple flowers conspicuously reticulated with a paler color, and *C. variegatum*, of the same peculiar character. But the king of these checkered flowered kinds is a new one—new to cultivation, that is, and named by Mr. Baker *C. Sibthorpii*. It was first described by Sibthorp in "Flora Græca" under the name of *C. latifolium*, but this name had previously been used for another species, hence the present name. For its introduction into gardens we have to thank Herr Max Leichtlin, who obtained it two years or so ago from Salonica. With his usual generosity he sent a few bulbs of it to Kew, where it is now beautifully in flower. In their handsome form, large size and lasting qualities the flowers resemble *C. speciosum*, but they are of the richest rosy mauve and prettily checkered like *C. variegatum*. I should say that in the whole range of hardy autumn-flowering bulbous plants we have nothing better than this Colchicum.

A list of all the hardy bulbous plants in flower here now would be longer than one would expect. Besides those above named there are the Belladonnas, some with their large blush-tinted trumpets in full blow, others only just pushing their purple noses through the soil. When they are all up there will be hundreds of them and all on a narrow border under a greenhouse wall, which is clothed with hardy Fuchsias, while the border is edged with the white Zephyr Flower (*Zephyranthes candida*). This is proving a better edge-plant than Box even; at any rate, it is growing amazingly well in a position which appears to have been too hot and dry for Box. The deep shining green of the short, graceful, rush-like foliage and the numerous white star-shaped flowers produce an effect of value in the garden. This effect, too, is permanent throughout the summer, and in winter the leaves remain green and fresh, frost having no effect upon them. The tall scapes of the white-flowered Watsonia, which Mr. O'Brien introduced from the Cape two or three years ago, are a new and pleasing feature among bulbs, for the scapes are four feet high, branched near the top and crowded with the whitest of white trumpets, which measure two inches across the mouth. Another charming Watsonia is a white-flowered *W. densiflora*. This species differs altogether from Mr. O'Brien's plant (*W. iridifolia*) in having an erect, unbranched scape, clothed near the top with brown scales, giving the flower-head an appearance exactly like a ripe

wheat-ear. Then the white flowers burst through the brown scales altogether, making the most delightful of white flower-wands. This is a new introduction from Natal and is now flowering for the first time in a bulb-border at Kew. *Tritonia rosea* and *T. crocata* are still in bloom, as also are the bright orange and crimson-flowered hybrid Tritonias raised by M. Lemoine. At Kew these plants are grown in very large round beds in conspicuous places on the lawns. Each bed is filled with one variety, and when the thousands of spikes are all in flower the effect is of the richest.

Lilies have not finished yet. Two very large beds of *L. lancifolium* (*speciosum*) are now at their best, better even than pot-grown specimens. A few years ago no one would have ventured to grow this species for open-air effect and left the bulbs to take care of themselves after they were planted. *L. auratum* is as grand as ever. The new *L. Henryi* is not yet over, but keeps step with its near affinity, *L. lancifolium*. The rich crimson spikes of the Schizostylis have begun to unfold and will continue until severe frost cuts them down. In the greenhouses the huge trumpets of *L. Wallichianum*, *L. Neilgherrense* and the richly colored *L. Nepalense* are now at their best. The two last-named are not very easy to manage in England, but *L. Wallichianum* is apparently as good-natured under artificial treatment as *L. Harrisii*. A new addition to Himalayan Liliums has been discovered by Mr. Boxall, Messrs. Low & Co.'s collector, and has been named in compliment to him by Mr. Baker. It is like *L. Nepalense* in habit and appearance and may be called a pale, uniform, yellow-flowered form of that species. Bulbous plants are the worst of all when they do not get what they want, but no plants are more interesting or more delightful to look at than they are when at their best.

Dahlias.—These are general favorites in England now, and at all the exhibitions in autumn they form a very conspicuous feature. The Cactus section is, perhaps, the most popular, although the single flowered kinds are thought by many to be the prettiest and most useful. Messrs. Cannell, Phippen, Paul, Ware, Turner, in fact, all the nurserymen who grow herbaceous plants for sale, have contributed many new kinds within the last year or two. In form there is nothing different from the Show, Pompons, Cactus and single flowered kinds, but in shades of color great progress has been made. Brown and black are scarcely flower-colors, but in Mr. Cannell's new varieties of the single flowered these colors are represented in various shades. Single Dahlias are easily raised from seeds, so easily, indeed, that in countries where they are not destroyed by frost they have run wild. I am told by Dr. King, of Calcutta, that in the Himalayas the river-banks are in many places clothed with Single Dahlias which have escaped from cultivation and established themselves over miles of country by means of seeds. At this rate it is possible that the Dahlia may become a scourge in the subtropical regions of the east. At a meeting of the National Chrysanthemum Society at the Royal Aquarium there were no less than one hundred new kinds of Dahlia submitted to the committee for certificates. Of these the following obtained awards: Show—George Gordon, John Rawlings, Indian Chief, Arthur Rawlings, Scarlet Queen. Cactus—St. Catherine, Beauty of Arundel, Baron Schrœder, Duke of Clarence, Rayon d'Or, Mrs. Keith. Fancy and Pompon—Touchstone, Lilian. Single—Miss Glasscock, Evelyn, Little Snow White. The Royal Horticultural Society certificated the following: Cactus—Sir Roger, E. Cannell, Mrs. Thornton. Pompon—Mars, Lorna Doone, Little Sarah, Mrs. Besant, Nellie Nachray. Show—Ada Rehan, Mrs. Ocock, Mrs. Humphries.

Begonias.—The tuberous-rooted kinds, now properly known as bedding Begonias, have reached as high a place in horticulture as the scarlet Pelargoniums. Every garden here of any pretensions employs these Begonias extensively in summer-bedding. In the conservatory the most select of named sorts are a conspicuous feature. Some are remarkable for size of bloom, flowers almost large enough to overlap a man's hand being among them; others are as large and double as Hollyhocks; others, again, are of some special shade of color. As pot-plants we have nothing better, because nothing is more easily cultivated or produces a better effect when in flower. And this is quite true of the tuberous Begonias as bedding plants. The excessive wet of the summer, now almost ended here, has not disagreed with these Begonias. In the parks, at Kew, in large private gardens near London, they have been and are still a chief attraction. The great demand for them is indicated by the acres of them grown by those nurserymen who make Begonias a specialty. Messrs. J. Laing & Sons appear to have millions of them in their large Begonia-fields. Mr. T. Ware has almost as many. So, too, has Mr. Cannell. In the fields the plants are as large and healthy and the flowers as perfect as in the carefully cultivated flower-bed. Ask these nurserymen if they can find a market for so many plants, and the answer is to the effect that they haven't half enough. In England the taste for summer-bedding is in the direction of simple masses of one color, and the many-hued beds, like Joseph's coat, will soon be things of the past. Of course, the king of summer-bedders, the Scarlet Geranium, will always be of first-rate value where color is wanted. These tuberous Begonias will also be exceptionally useful for the same purpose. They require a little management at the beginning, but their wants are simple and soon mastered.

Gathering Storing Fruit.—Mr. Joseph Cheal, an eminent fruit nurseryman in Sussex, and one of the organizers of the British Fruit-growers Association, read a paper upon this subject at a conference of fruit-growers held in Edinburgh a few days ago. Mr. Cheal's knowledge and experience are such as enable him to speak with authority upon such important matters as the care of fruit after it is ready for gathering. He recommends the use of ladders that will stand alone, hand-picking, and baskets instead of sacks. Many apples, he says, should be gathered a few days before they are ripe, and at once placed in boxes or sieves to travel. For the bulk of fruit it is best to allow them to remain on the trees until they are ripe, as when gathered too early they shrink, the rind shrivels and the fruit looks leathery. All fruit should be sorted and graded if intended for market. No two kinds should ever be placed in the same basket. Small baskets of neatly packed fruits of high quality will fetch a much higher price than if placed roughly in the ordinary basket. A novel fruit-store recommended by Mr. Cheal is "a cave in a chalk-bank or sand-hill, which makes a capital apple-store when fitted with wooden shelves." Ventilation, an equable temperature, and the exclusion of frost, are essentials in a good store-room for fruit. A simple store, which answers well, according to Mr. Cheal, is made by throwing up two banks of soil and placing a thickly thatched roof across them. Pears require a warm dry store-room, differing from apples in this respect. The cool and somewhat moist atmosphere required by apples takes all the flavor out of pears. For pears hot-water pipes may be used with advantage, but not for apples.

Kew. *W. Watson.*

Cultural Department.

Copper Salts and Vegetation.

THE solutions of copper are efficient fungicides. The various micro-organisms—mildews, blights and rots—infesting plants of a higher order are killed by contact of these solutions, and germination of their spores is prevented. It is believed that these uses of copper will be of untold value to agriculture. No doubt of this, provided the copper is destructive only to these lower plants, the fungi, and that it is not harmful to the vitality of our cultivated plants.

But these copper salts, sprayed on vegetation, are finally deposited on and in the soil beneath, and they may there be inimical to the germination of our planted seeds and to the prosperity of plants which spring from them. These are grave possibilities, made seriously plausible by experiences had in my recent practice. When under the direction of the United

States Department of Agriculture I began experiments with the copper compounds, I naturally did not confine the treatment to the Vine exclusively. With the view of preventing Corn ergot (*Ustilago Maydis*) I soaked for four hours a portion of my seed-corn in the Bordeaux mixture, and then planted it in a plat in the field by the side of other plats seeded with corn not thus treated, and in comparison with a plat planted with corn-seed soaked for eight hours in a solution of copperas (sulphate of iron). On the plat treated with Bordeaux mixture, the seed generally failed to germinate; on the other plats, the seed grew in usual health.

The next year I made the experiment of spraying sundry plats of Peachblow Potatoes, to prevent blight and rot. This was successful, as reported in one of the department bulletins. The sprayed plats gave a good crop; the unsprayed plats were all the victims of the fungus (*Phytopthora infestans*), dead

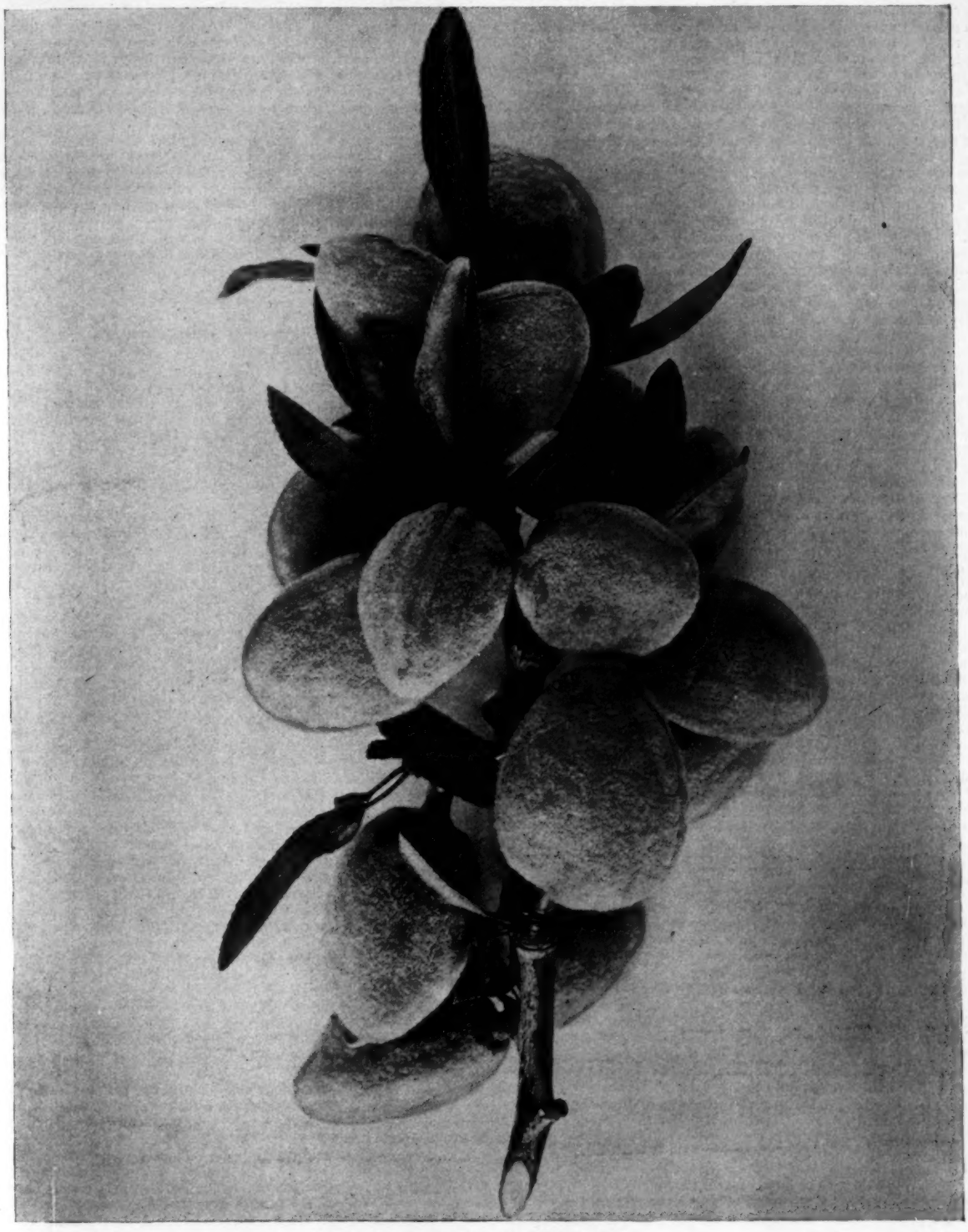

Fig. 78.—A Seedling California Almond.—See page 495.

and dried up six weeks before the others, and giving practically no crop. This potato-patch was subsequently planted again to Peachblows. When the tubers sprouted I saw that growth on the plat which had not been sprayed was earlier and more vigorous than on the plats which were sprayed the previous season.

The next year this patch was again planted to Peachblows. On three rows I sprayed the tubers, after they were dropped along the furrow, with Bordeaux mixture, expending about the same quantity of the liquid as would be used in one spraying of a row of Grape-vines. These sprayed tubers generally failed to sprout. Nothing from them was visible above ground for two weeks after those in the other plats were up, and at last more than half of the sprayed tubers never sprouted, rotting in the ground.

In the spring of 1891 I again planted this Potato-patch to Peachblows. On the plat where the tubers had formerly been sprayed along the furrow, but not thus sprayed this year, fully seventy-five per cent. of the Potatoes failed to grow, and those which finally did come up showed a weak and spindling growth, and yielded very few potatoes. The other plats did fairly well, excepting that the plat which has never been subjected to the copper-spraying showed the best growth of plants. These, however, succumbed to the blight, as I have continuously left this plat untreated. The Potato-plant may be completely protected from this rot fungus by persistent spraying with the Bordeaux mixture, but there is ground for fears that present benefits may be followed by a future injury, and that soils once largely contaminated by the copper salts may be thus rendered bad for the growth of plants.

I shall renew this Potato experiment another season, but I fear that similar results will be manifest. It will be a serious matter if we find that in our zeal to save the health of our plants by these copper applications we risk the permanent ruin of our soil.

When planting my hot-bed with Sweet Potatoes, this spring, I sprayed the tubers, when laid in one section of the bed, liberally with the Bordeaux mixture. None of the tubers thus sprayed sprouted; all rotted. I removed these spoiled tubers, and, without changing the soil in this section of the bed, replanted it with sound and growing tubers, the sprouts on which were half an inch long. Many of these tubers did not send a sprout above ground, but they perished as did the ones formerly planted. I did not obtain any good plants from this sprayed section of the hot-bed.

I shall leave the soil in this bed exposed during winter, and purpose next spring to save the soil of the sprayed section and replant it with Sweet Potatoes, in order to learn if the contamination of the copper remains in the upper stratum, or if it is washed downward so deeply as not to be harmful to the growth of the plants. These analyses of the soil by vegetation are more searching and more practical than those made by the chemist can be.

My Experiment Vineyard, which has been annually subjected to treatment by the copper solutions ever since 1887, affords a good field for investigation. I purpose to examine chemically the soil of this vineyard, in successive strata, to the depth of, say, two feet, to find where the copper is. On this Experiment Vineyard I do not, as yet, see any defect in the growth of the vines. All are thrifty and are peculiarly healthy. My sprayed vines are covered with green foliage and have plenty of well-ripened canes, while a neighboring vineyard, not ten feet distant from mine, has been bare of leaves for the past two weeks, with its canes but poorly ripened. On my vineyard this year I saved the entire crop by spraying with the Bordeaux mixture. The neighboring vineyard, of the same variety of grapes, lost its entire crop by the black rot. So far as the Vine is concerned its testimony is decidedly in favor of the use of the copper remedies. Yet, other plants in this vineyard—weeds and grasses—tell plainly that something in the soil is hostile to their health. The surface-growths in my Experiment Vineyard, which has been longest sprayed with the copper mixtures, contrast in a striking way with those of vineyards untreated. Among untreated Vines the weeds and grasses are knee-deep. In the sprayed vineyard the soil is nearly bare of this sort of vegetation.

These observations suggest that it may be well to be parsimonious in the use of copper solutions on our soils. How they may affect the root-system of the Vine we, as yet, do not know; but for other vegetations it will possibly prove dangerous. At any rate, until we know more on this subject, it will be more safe to economize in the application of copper.

When we first learned of these mixtures from France it was stated that the simple solution of copper sulphate—one pound of the sulphate to twenty-two gallons of water—is effective in preventing diseases of the Vine. We found that this "simple solution" harmed the foliage of the Vine. We then substituted the Bordeaux mixture, six pounds of copper sulphate, four pounds of fresh lime (to neutralize the acid of the sulphate), and twenty-two gallons of water. French professors at Montpelier now advise the use of twice as much sulphate in the mixture. Now, if the "simple solution" of copper be fatal to the fungus, why is the Bordeaux mixture better, with its six times as much copper salts and lime, to neutralize its effect on foliage? My experiments with the copper sulphates have shown that it is the copper only which is the fungicide. Hence, why may not only one pound of it be effective, if it be neutralized in acid by an alkali?

The experiments in prevention of plant-diseases are, as yet, but crude. Many tests must be made before our agricultural pathologists can speak with certainty on many vital points. The fact is fixed, that the copper mixtures are reliable fungicides. We must now further find how to use them safely—that is, without harm to vegetation.

The suspicion of injury to man when he partakes of fruits sprayed with the copper solutions has been suggested by some city boards of health. But this is preposterous.

Vineland, N. J. *A. W. Pearson.*

Work of the Season.

THE preparation of various plants and bulbs for winter-flowering will occupy a prominent place in the routine work of the present time. The more tender subjects, such as Bouvardias, Stevias, Callas, etc., will be safely housed before this date, for to leave them out after October 1st in this latitude is only to invite injury. *Lilium Harrisii*, for early flowering, should have been potted some weeks ago, but if needed for Easter only, there is still time. For the latter purpose *L. longiflorum* is decidedly better, making a much handsomer pot-plant than the Bermuda Lily.

As a potting material for these Lilies there is nothing better than light loam well enriched with good manure, and they do the best when originally set into the pots where they are to bloom. It is bad practice to disturb the roots of a Lily by a shift after the plant has started. In order to secure a good root-growth before the top makes much headway, these Lilies should be placed in a cold frame until sharp frosts are apprehended, when, of course, they must be brought into more protected quarters; and I have secured the strongest growth by covering the frame with slightly shaded sashes instead of covering the pots with a mulching. Free ventilation is needed, both night and day, so long as the weather will permit.

Lily-of-the-Valley crowns, or pips, will also need to be cared for now. It is best to pot the crowns as soon as they arrive, and then store them out-doors until needed. The separate pips may be treated in the same manner, or may be heeled-in in a frame in the original bundles.

Tulips, Hyacinths and Narcissus should also be potted as received and well covered in cold frames, in order to induce a strong growth. From here they may be brought into heat in successive lots as required. Cannas should be lifted as soon as the foliage is injured by frost and may be stored in almost any moderately warm and dry place for the winter. It will be found a good plan to lift a few clumps of the best dwarf varieties before frost and put them in tubs or boxes for conservatory decoration, and also to furnish flowers for cutting during the winter. The handsome foliage and bright flowers of some of these Cannas are very effective when used in large vases.

Carnations recently lifted should be staked and tied as soon as possible, to prevent the flower-shoots from falling about, and if the plants are set out on a bench, the neatest method of staking is by means of wires placed in the same way as would be done for a bench of Roses. But, whatever method is adopted, some care should be given to the tying of Carnations, for, when bunched up too tightly, the foliage in the centre of the plant soon decays from lack of light and air, and not only the appearance, but also the health of the plants is ruined.

Cyclamens will soon be showing flower—in fact, many will do so before this—and among the most necessary precautions for their welfare are free ventilation and plenty of light. It should also be remembered that shapely, sturdy plants cannot be developed unless they are allowed abundant room.

To encourage the bracts of Poinsettias a stimulant in the form of liquid manure should be given about once a week. Pure guano is probably the most effective for this purpose, but it should at all times be used with caution, for an overdose will do considerable injury.

Holmesburg, Pa. *W. H. Taplin.*

Chrysanthemums.

IN the gardens of the amateur growers of Chrysanthemums at this time one observes a great difference in the forwardness of the buds in the various collections—a difference, apparently, in extreme cases, of a week. This is not peculiar to this season, but it may be observed any year. On a comparison of notes the owner of the backward blooms seems to have cultivated his plants judiciously and given them every requisite attention, and it is sometimes rather difficult to account for the slowness of development. It will generally be found, however, that either over-nourishment of the wood, resulting in gross sappy growth, which matures slowly, or else a rather shady position, and, perhaps, a too close tying together of branches has interfered with the ripening of the wood. Perhaps, also, as the season progresses toward the middle of August, the time when the buds may be expected to appear, the owner, a little over-solicitous, has given them liberal supplies of water and manure and kept them moving, whereas, were the plants kept rather dry till the buds appear and then given the proper amount of manure, the buds will quickly show the benefit of the treatment. These notes refer to plants in the open ground, which, in some respects, require different treatment from those in pots. There seems to be a general impression that these plants require great supplies of water, whereas, in the open, few plants are more easily injured by an over-supply. I should say that they require much less water than Roses to keep them in good condition. It has been often observed that vegetative vigor and sexual vigor are not synonymous, and this is true of no plant more than of the Chrysanthemum. A large grossly grown plant is usually a disappointment if good flowers are expected. A judiciously grown plant, with fine-grained wood, will always produce the best flowers.

Now that the October days have come, with keen frosty air, one turns to the Chrysanthemums with something more than cultural interest; a few forerunners there are in bloom, but these are only plain sisters of the splendid array which will flaunt their beauties in early November. The Chrysanthemum grower finds his present excitement in watching the gradual development of the fat buds which, with many changes, will perhaps expand into the longed-for perfect bouncing flowers. If, at the same time, like many amateurs, he flowers his plants in the open air, with temporary protection, he will find plenty of other excitement in guarding his treasures from hard frosts and high winds, which never seem to blow quite so hard as when one has a tent, or some such contrivance, which is a tempting plaything for a robust and festive gale.

Elizabeth, N. J. *J. N. Gerard.*

The Hardy Plant Garden.

QUITE a number of perfectly hardy bulbs succeed best when planted in fall and allowed to remain in the soil all winter. Although not a bulb, strictly speaking, the Lily-of-the-Valley usually should be planted as soon as it is received. There are many gardens that have a shady corner where this plant would be perfectly happy for generations, in places where it is difficult to get grass to thrive, as, for example, under trees and near shrubs that have become bare at the base. All that is necessary in planting is to cover the crowns, or "pips," about three inches deep and mulch annually with well-decayed manure to insure an abundance of these lovely flowers. Another plant, not bulbous, which should be planted now is *Mertensia Virginica*, the "Virginian Cowslip." No garden is complete without this early spring flower, which is far more sought after in England than here. The Mertensia has large fleshy root-stocks that send up shoots in early spring, and these bear flowers of the most intense blue, which last a long time in perfection even when cut. It is at its best here the first week in May. The Dodecatheons, also, should be planted now, as they flower early too, and if they do not flower the first season mark the spot where they are in June when they die down, and another year, when stronger, their pretty Cyclamen-like flowers may be enjoyed. There are several varieties of Dodecatheon, and all are pretty, though there are some forms sold as *D. Meadia*, that have a poor washed-out pink color, which may be improved by the addition of burnt earth or refuse. Collectors tell us that where prairie-fires pass over a locality the Dodecatheon-flowers are always of a much deeper color. If this is so, we have a very simple way of improving a pretty garden-plant.

If every one had courage to chronicle his failures as well as the successes the world would be much wiser to-day. Certain it is that the beautiful Anemones that thrive so well in Britain cannot be made to feel happy here, and after trying various methods we have now transplanted what are left of them to a cold frame, where they may flower in spring. We hope they will, as they are beautiful when cut and last a long time, but it is not wise to speak of them as hardy. I am inclined to think that *Anemone fulgens* is much more hardy than the varieties of *A. coronaria*. We planted them out once in a cold frame and merely protected them with a sash, simply to keep off the rain and snow, and they did better than any I have ever grown in pots. It is very difficult to procure a good strain of *A. fulgens* now; nearly one-half of them are apt to turn out mere abortions, the flowers being a mixture of green and scarlet shred-like petals. There is a form in cultivation known as Græca, which is the best of all, with broad Tulip-like petals. In districts south of Washington *A. fulgens* would be perfectly hardy and a beautiful border-flower when planted in light rich soil.

Calochortus, again, cannot be considered hardy. We tested them several ways last winter, but our only success was with those in cold frames planted in pans. These flowered beautifully in spring, and were very pretty when cut. In the garden now we have *Colchicum autumnale* in flower, a singular plant, which attracts attention always. Colchicums should be procured early, as the flowers often develop before their arrival here from Holland. In any case much must not be expected the first season, but in spring a good growth of foliage may be looked for, and in fall they will flower abundantly. They are often called autumn Crocuses. The winter Aconite is one of the earliest heralds of spring, with yellow flowers borne on a fringe of foliage just above the ground. A clump of this is gladdening to the eye, as the bright flowers open as soon as frost loosens its hold. Botanically the plant is *Eranthis hyemalis*.

Chionodoxa scarcely needs an introduction, so much has been said of it, but it has never yet been over-praised. The bulbs are small, but even if planted a foot deep they will come up and flower just as early. None except those who have tried know how difficult a bulb this is to attempt to dig in quantity; one is sure to leave as many behind as are taken up. The Chionodoxa is charming in any situation for early spring display, and with it comes the deeper blue Siberian Squill. These are both cheap, perfectly hardy, and should be planted about six inches deep. *Iris reticulata*, one of the bulbous Irises that flower early, is not difficult to keep, and is almost as fragrant as a Violet. A little breadth of this Iris is very pretty in early spring, as the flowers open with the Snowdrops. The best Snowdrop is *Galanthus Elwesii*. This seems to do better year after year than *G. nivalis*, the older kind, and flowers much earlier also. But of the time of flowering for spring bulbs very little can be said, as so much depends upon the weather.

South Lancaster, Mass. *E. O. Orpet.*

Anemone Japonica.—The Japanese Wind-flower, as this plant is commonly termed, is perhaps the best of our hardy Anemones, and undoubtedly the best late-flowering perennial known in New England gardens. The flowering season begins early in September, and continues in great brilliancy until frost. The large, dark green, ternate leaves are borne on stout petioles upward of a foot in length. The blade portion of the leaf in its entirety is of cordate outline, and the oblique lateral divisions and ovate central segment have also the cordate character, and are toothed and irregularly lobed. The stems, ascending boldly erect from the thick foliage to a height of from three to four feet, are branched toward the summit, and bear a profusion of spreading rose-purple flowers three and a half inches in diameter. The segments of the outer circle, where sepals are scarcely distinguishable from petals, are very numerous and of oblong form. The bright green, globular, pistillate mass in the centre, surrounded by a broad ray of showy yellow stamens, greatly enhances the beauty of the flower.

There are two quite distinct varieties of *A. Japonica*. The first, *A. Japonica*, var. *alba*, also known as Honorine Joubert, is by far the most popular, and decidedly the best of the three. The flowers of this variety are a trifle smaller than those of the species, and the elliptical or obovate parts of the pure white perianth rarely number more than nine, or about one-third of the number observed in the original form. *A. Japonica*, var. *rosea*, resembles the white-flowered variety in all particulars save the color of its flowers, which are of a delicate rose tint. These varieties are said not to be of seedling origin, but to have been obtained by means of root-sports.

A. Japonica is a native of China and Japan, and the inhabitants of those countries, where it is carefully grown, have long

appreciated its charms. It was introduced to Europe in 1844. The cultivation of the species and its varieties is not difficult. The plants make their best growth, and, consequently, flower most freely, on a moderately dry site which affords a slight measure of shade. A somewhat sandy loam, well enriched with leaf-mold, forms an excellent compost. Massing is the most effective method of planting, and great care should be exercised in the selection of the position for such masses, so that removal of the plants may not soon become a necessity. Disturbance of the roots is almost invariably resented by healthy plants, hence the desirability of using proper judgment in planting. A light annual top-dressing of thoroughly decomposed leaf-mold early in spring will preserve the needed fertility. Propagation may be effected by carefully dividing the roots in spring.

Cambridge, Mass. *M. Barker.*

Musa Ensete.—In a recess here, sheltered from the northwest winds, there stands, untouched by frost in mid-October, a noble group of the Abyssinian Banana. They are now six years old and have been planted in this corner for the last four years, but, as yet, have not fruited. Every autumn, when cut down by frost, they are dug up and stored in sand, free from frost, until some time in January, when, after repotting, they make new roots and a few leaves, and, although much reduced in size, they are in good condition for planting out in June. The set-back received during winter doubtless prevents their fruiting during the succeeding summer, and it is fortunate it is so, since fruiting in this species means death. Many plants of this species have been lost during winter through over-watering. They need very little. An acquaintance of mine threw a small plant into the loft, above a workshop, which was always free from frost. It kept alive all winter and grew well the following season, with nothing about its roots but a piece of bagging.

Wellesley, Mass. *T. D. Hatfield.*

Correspondence.

The Province Lands at Provincetown.

To the Editor of Garden and Forest:

Sir,—During my recent search for public holdings in the shore-towns of Massachusetts, for the Trustees of Public Reservations, I examined the province lands at Provincetown, and traced the course of legislation regarding the title to them. They are undoubtedly the property of the commonwealth, and thus constitute an important and extensive public reservation already in existence. It comprises all that part of Provincetown lying west of the westerly fence of the eastern schoolhouse, and extends southerly from the said fence about eighteen degrees east to the harbor, and from the said fence northerly about eighteen degrees west to the ocean. A large part of the village of Provincetown stands on this land, and besides the tract thus built upon there is an unoccupied area which the town officers estimate at 4,000 acres.

At a very early period in the history of the colony these lands were, by specific action of the Government, reserved as a colonial fishing-ground, and from it the colony obtained a varying revenue. At a later date this territory was set apart as a fishing-right to be held in common by the people of the province. The records of the colony show that it was enacted by the court in 1661 that no stranger or foreigner shall improve—that is, use—our lands or woods at the cape for the making of fish without liberty from the Government, and that all who obtain the privilege shall obey orders and pay sixpence a quintal for the colony's use for all the fish they catch. In 1670 the colonists were required to pay sixpence a barrel for mackerel caught at Cape Cod, and foreigners one shilling and sixpence. After this there is a long succession of grants and regulations for this fishing-ground, which constantly assert the title of the colony to these lands. Some of these grants were made to support schools, some for bounties for soldiers or their widows. In 1690 the court specifically asserts its possession of all the soil and royalties at Cape Cod.

In 1736 three men, as agents for the inhabitants of the Precinct of Cape Cod, presented a petition to the court asking that the precinct be made a town, and the court granted the request, with this condition, "Provided it do not prejudice the right and title of the province to the lands nor obstruct any person in the fishery, which is a privilege in common." The precinct was made a town in 1727, and called Provincetown, and in the act of incorporation the term "province lands" is first used officially. This is the act:

"Be it enacted, etc., That all the lands on said cape—being province lands—be and hereby are constituted a township by the name of Provincetown, and that the inhabitants thereof be invested with the powers, privileges and immunities that any of the inhabitants of any of the towns within the province by law are or ought to be invested with; saving always the right of this province to said land, which is to be in no wise prejudiced. And provided that no person or persons be hindered or obstructed in building such wharves, stages, work-houses and flakes and other things as shall be necessary for the salting, keeping and packing their fish, or in cutting down and taking such trees and other materials growing on said province lands as shall be needful for that purpose, or in any sort of fishing, whaling, or getting of bait at the said cape, but that the same be held as common, as heretofore, with all the privileges thereunto in any wise belonging."

From 1727 to 1854 there is, so far as I can ascertain, no record or indication of any abandonment or modification of the title of the province or commonwealth to these lands, and in 1854 the legislature enacted that

"The title of the commonwealth, as owner in fee to all the province land within the town of Provincetown, is hereby assorted and declared, and no adverse possession or occupation thereof by any individual, company or corporation for any period of time shall be sufficient to defeat or divert the title of the commonwealth thereto."

"The provisions of the 12th section of the Revised Statutes, chapter 119, shall not be held to apply to any of the province lands in said town of Provincetown."

These paragraphs are sections 8 and 9, chapter 261, of the Laws of 1854. The 12th section of chapter 119, here referred to, provides for the acquisition of title to land by undisputed possession or occupation for a prescribed term of years, and these province lands are expressly excepted from its application.

The people living on these lands are merely occupants and holders. They buy and sell the land, and give, receive and record warranty-deeds, but these, though they may be good as against the claims of individuals, are of no force or validity against the right and possession of the commonwealth, which holds by an absolute title, indefeasible by adverse possession or occupancy by any individual, company or corporation for any period of time.

There is no reason to suppose that the state will ever disturb or eject these occupants of the lands belonging to the commonwealth. Nobody, so far as I know, is in favor of any interference with the occupancy of those who have been permitted to appropriate portions of these common lands to their individual use; but a large number of the inhabitants of the town of Provincetown are dwellers on the public domain, and have no title in fee to the land which they occupy.

The most important feature of the matter is the fact that, besides the territory thus used and dwelt upon, there remains an area entirely unoccupied which is estimated at about 4,000 acres, or six square miles. This region embraces and constitutes the extreme end of Cape Cod. About half of the tract is fairly well wooded, being covered by a thick growth of "hard Pine" (*Pinus rigida*), Oak, Maple and other trees, with a dense undergrowth of shrubs and vines. This wooded portion lies nearest the village of Provincetown, and probably contains about 2,000 acres. The part nearest the shore, constituting the point of the cape, appears to be of nearly equal area. It is a region of moving sand, which is blown by the wind into great billows, or irregular ridges, which are every year rolled farther and farther inland toward the village, swallowing and burying the forest as they advance.

I saw Maple-trees more than twenty feet in height which are entirely covered as they stand, except a few sprouts from the highest branches, by which the tree is struggling to raise its lungs above the suffocating sand. It is a painful spectacle to a lover of trees. The whole of this area of 2,000 acres of unstable sand was covered by a Pine-forest when white men first came to the cape. This desert is not natural, but was directly created by human agency. The trees were cut away, and much of the space—perhaps all of it—burned over, thus destroying the soil and the mat of vegetable fibres which held it in place. All the conditions which maintained the stability of the surface being destroyed, the sand of the shore began to move inland before the wind, and it has continued to advance with increasing depth, volume and velocity until now. The stumps of Pine-trees are still visible where the wind blows the sand away down to the original surface.

Much money has been expended in efforts to stay the progress of this ruinous and resistless tide of sand, but nothing has been accomplished except to demonstrate the futility of the methods employed. The planting of beach-grass has been the means chiefly, or wholly, relied upon to bind the shifting

and flowing surface; but it is almost entirely ineffective, owing to the depth and mobility of the sand and the great force of the wind. A ridge or plateau of sand, from ten to twenty feet in depth and several acres in extent, is sometimes removed in a few hours.

I think the whole of the desert area might be reclaimed and rendered stable and productive, and the wooded region defended from further injury; but no effort for these ends can be successful unless the means used are adapted to the essential conditions and requirements of the problem. These have been entirely disregarded hitherto. The work of restoration must, of necessity, begin at the edge of the water, at the place where the wind which moves the sand first exerts its force.

A temporary barrier or wind-break, extending a considerable distance along the shore, would be required. A hedge or wall, formed of several rows of closely planted Cedar-saplings, or something of a similar character, would afford the protection needed, and under the shelter of this hedge could be planted such cuttings and young trees as are thought best adapted to growth in such conditions, some species of Willow and of Poplar, the Pitch Pine and other suitable trees. One species of Poplar grows rapidly and becomes very large along the streets of Provincetown, where it is absurdly called the "Silver Oak."

The hedge of Cedar-saplings would not be planted to grow, but it would last a long while, would catch most of the sand that might be raised by the wind between the hedge and the sea, and would afford shelter for the growth of the cuttings and young trees planted at its foot on the landward side.

Only a narrow strip could be thus defended at first, and, therefore, only a narrow strip could be planted at once with any possibility of success. The planting of a broad area at the beginning of the undertaking would be entirely unscientific and impracticable. After the young trees of the first narrow strip of plantation along the shore have begun to grow, another narrow belt, on the landward side of the first, can be planted, but the requisite shelter for later strips or belts of planting can be supplied only by the growth of the first belt. The essential requirements for the enterprise would be a small beginning, careful attention to details, unremitting watchfulness and fostering of the young plants and the extension of the plantations by successive narrow belts. After a beginning is successfully made, short lateral spurs could probably be extended from the base line of the planting at frequent intervals and at various angles. Much time would be indispensable, and great patience and faithful industry.

This state reservation is under the care of a state agent who is appointed by the governor and council. He is by law empowered to give permits for the cutting of timber and of sods on the state lands. The sods are not of grass, but of the roots of the bushes and shrubs growing on the land, and when these sods are removed all the soil is taken up with them, down to the inert sand, which is then blown away by the wind, thus adding to the area of desert. The sods are much desired and much used by the people of the village for "bulk-heads," terraces, banks, walls and many similar constructions. It is almost the only building material available for the people of the village without cost, but it does not belong to them. It is the property of the state and ought to be protected from spoliation. The removal of the soil is robbery of the most fatal kind.

The state agent is not, in any considerable degree, efficient. He appears to be extremely honest and conscientious in wishing to avoid expense to the state in the administration of his office. He grants very few permits. The fee for each permit is one dollar. All fees are turned over to the public treasury, and the agent is allowed three dollars a day for time actually employed in the duties of his office. He told me that, to save expense to the state, he seldom visits the reservation. I think that, as a matter of fact, he gives it no considerable attention, and scarcely ever sees much of its area. As a consequence, people do not take the trouble to apply for permits to cut wood or sods, but take what they want without permission. The reserve is despoiled of both wood and sods without scruple. Many of the Portuguese laborers in the town obtain fuel for domestic uses from the state lands, carrying home the wood on their backs after the regular labor of the day is over; but the native Yankees also contribute their full share to the spoliation.

The proximity of thousands of acres of wooded land, without apparent ownership or efficient supervision, is a perpetual provocation and inducement to theft, and it would have a similar effect anywhere. I have repeatedly observed about the same state of things on Indian reservations in Dakota and Idaho, and on the public domain in the Coast-range region. While this Massachusetts reservation remains unguarded and uncared for it must continue to exert a demoralizing influence upon the adjacent community.

I think the law relating to the administration of the reserve should be so changed that no cutting of timber for use outside of the limits of the reservation shall be authorized or permitted, and the removal of sods and soil should be entirely prohibited.

The town officers of Provincetown and other leading citizens would be glad to see an efficient supervision of the province lands established and maintained by the state. There is much talk of various schemes of real-estate men for the use and improvement of this state property as a means of attracting summer visitors and revenue to the village, but the first thing for the people of the state to consider is the need of proper care for the property of the commonwealth, and the adoption of an efficient system of treatment for the reclamation of the desert area and the preservation of the extensive wooded region which still remains unburied.

So far as can now be understood or foreseen, the advancing sand will in time, if it is let alone, bury the remaining woodland and destroy the village and harbor.

Boston, Mass. *J. B. Harrison.*

Sawdust for Protecting Plants.

To the Editor of Garden and Forest:

Sir,—In your issue of September 30th Professor Massey writes on the value of sawdust as a protection for plants. I should like to add my testimony as to its merits as a winter covering. It is somewhat difficult in city gardens to procure an annual supply and care for it from year to year. It surpasses, however, every other material I have ever used for the purpose. I have found it very valuable for wintering Carnation-seedlings, as it carries them through without any appreciable loss, and it is worth trying for any plant that suffers from the cold or severe winds of winter. The proper article to use is coarse sawdust from large circular saws used for manufacturing lumber. Of course, this dust should be kept dry by a covering of boards or building-paper or anything else which will shed rain to a reasonable extent.

Milwaukee, Wis. *Charles L. Mann.*

Recent Publications.

Annals of Horticulture in North America for the Year 1890. By L. H. Bailey.

This volume follows closely the methods of the Annals for the year 1889, and the series promises to be of real value as books of reference. Of course it must be admitted that a compendious record of the advance in horticultural science and practice year after year would be a help to all who have any interest in gardening. This would be true if the work did no more than collect and classify facts that have already been published, and arrange them so that they can be conveniently referred to. But, as Professor Bailey says in his preface, it is very difficult to lay out a plan for such a series which shall include what is most essential and exclude all other matter. The author had determined, apart from the Annals proper, to publish in each volume an investigation of some particular branch of American horticulture, as he did, last year, in his Catalogue of American Kitchen Garden Vegetables, which was the most elaborate chapter in the book. This year he had decided to make a census of native North American plants which have been introduced into cultivation, together with their horticultural varieties, but the work was one of such magnitude that it has been postponed.

The first part of the book gives a general view of fruits and vegetables during the year, with statistics of crops and prices and the like. Ornamental plants and ornamental gardening is next treated in the same way, and this is followed by an interesting and valuable sketch of what has been accomplished during the year in the way of treating plant diseases and injurious insects. A list of the sub-titles of the remaining section of Part I. will give the best idea of the character of the subjects treated. They are: "Legal Control of New Varieties," "Nomenclature," "Road Agitation," "The Census," "The New Tariff," "Educational Matters," "American Wild Flower Clubs," "Societies." Part II. is devoted to special annals, including the introductions of the year and the plant portraits, together with a directory of the most important horticultural societies of North America and of persons in charge of horticultural work in the experiment stations, a list of botanic gardens in the world, a title-index to publications of the experiment stations relating to horticulture, and a subject-index of the same sort, the books of the year, a list of the horticultural periodicals and

a short notice of such tools and conveniences for horticultural work as have been invented and brought into use. Of course, no two people will agree as to what such a work should contain, but the matter presented has been carefully prepared, and the book will be gratefully received by the horticulturists of the country.

Notes.

The Chrysanthemum Show of the Massachusetts Horticultural Society has been postponed until November 10th.

The Horticultural Society of Florida has asked for three acres at the Columbian Exposition in which to show an orange grove and make a fruit display.

Visitors from the east are often surprised at the size of the Geraniums growing out-of-doors in California, where they attain a height of from twelve to fourteen feet, and are covered with bright scarlet blossoms.

Steam-pipes are said to have been made in England from the ramie fibre. This material is subjected to tremendous hydraulic pressure, and, having the property of being unaffected by moisture, will neither shrink nor swell, besides being a non-conductor of heat. The pipes are said to have a tensile strength twice that of steel pipes.

The ornamental fruits of some plants are hardly appreciated for decorative work as they deserve. A lasting and extremely tasteful combination seen a few days ago was that of clusters of the scarlet fruits of *Cratægus coccinea*, intermixed with short sprays of the white-berried *Symphoricarpus racemosus*, with a few green leaves, in a wide, shallow vase of dark blue color. It is worthy of remark that both the plants are natives.

In a paper on gardening read before a meeting of the Croydon Gardeners' Association in England Mr. Charles Gibson spoke of steam-power as an agency which has contributed very largely to the enrichment of gardens with plants from all parts of the world. It is the speed with which plants are dispatched on long journeys which renders the loss so much smaller than what it was formerly, and this change has been brought about by steam.

English horticultural journals are loud in their praises of *Clethra alnifolia* and its racemes of sweetly scented blossoms. Of course it is not new in England, but it is spoken of as somewhat rare among foreign shrubs. The fact is that it is too rarely planted even in this country, where it is a native. The Sweet Pepper-bush, which blooms from midsummer well into September, is not excelled by any shrub of its season for the fragrance and beauty of its white flowers.

Mr. Benjamin G. Smith, of Cambridge, Massachusetts, exhibited at the meeting of the Horticultural Society, in Boston, on the 10th of October, thirty-four different varieties of grapes, and received the silver medal of the society for his collection. The grapes were all cut from the vines the day before, and no copper salts or other mixture had been used to prevent fungal diseases. The general excellence of the collection was noteworthy, and it spoke well for the skill of amateurs in growing hardy Grapes in Massachusetts.

According to Downing's *Horticulturist*, the first specimen of *Paulownia imperialis* which bore flowers in this country stood in the famous Parsons nursery at Flushing, Long Island, and flowered in 1847. One of the finest Paulownias we remember to have seen must have been planted at about the same time as Mr. Parsons' tree, as it was of great size, and bloomed profusely at least as far back as the year 1858. It stood on the west side of Fifth Avenue, near Sixteenth Street, in front of a house which was torn down to make way for the present Judge Building.

Mr. H. W. S. Cleveland writes that there are no acorns on the Bur Oaks in Minneapolis and the region thereabout this year. As a rule, the sidewalks in many places in that city at this season are littered with acorns from the old Oaks which were left standing on vacant lots or have been preserved in the yards of private residences. This year not an acorn can be found in the city nor in any of the woods near by. Mr. Cleveland is interested to know how far this failure extends, and since it is a matter of general interest, we should be pleased to hear reports on the acorn-crop from readers in other parts of the country.

A correspondent of the London *Garden* speaks of *Abelia rupestris* as a very valuable shrub for clothing low walls on account of its neat growth, bright foliage and its long flowering season. It is said that while it is hardy in many parts of England, in others it requires the protection of a wall. It seems to flourish well in this country as far north as Philadelphia. In Washington it is one of the most interesting shrubs in autumn. It is planted very largely in the public grounds of that city, and it is covered for months with clusters of pink and fragrant blossoms. It forms a dense bush, and under careful pruning its slender, curving twigs assume a very graceful outline.

An American Carnation Society was organized at Philadelphia October 15th, with a membership of about fifty. The following officers were chosen: Edwin Lonsdale, President; William Swayne, Vice-President; C. W. Ward, East Moriches, New York, Treasurer; C. J. Pennock, Kennett Square, Pennsylvania, Secretary. The meeting adjourned to meet in New York during the Chrysanthemum Show, to be held there next month. The Executive Committee is composed of the officers as elected and three others, namely, Robert Craig, Philadelphia; R. J. Lombard, Wayland, Massachusetts, and James Hancock, Grand Haven, Michigan. The objects of the society are to improve the Carnation, to encourage the production of new and better varieties, and to discourage the dissemination of novelties which have no decided value. The society ought to accomplish a useful work.

Mr. M. A. Thayer, who has demonstrated practically that small-fruit culture can be made profitable in Wisconsin, has just published a report from his fruit farms at Sparta which, from his careful method of keeping accounts and the generous spirit manifested, seems worthy of commendation. Five years ago the question of growing small fruits there was doubtful, and he therefore gives a full account of his outlay and income. The first year he planted eight acres of Blackberries, seven of Raspberries and two of Strawberries, at a total expense of $1,618, with no income. The second year he added eight acres, and his total expenses were $2,462, and his income was $926. The third year he set ten acres more to small fruits; his expenses were $3,394, and his receipts $4,432, or considerably more than $1,000 profit. The fourth year, or 1891, the expenses were $4,500, and the receipts $8,846, with a profit of $4,346. The receipts and expenditures are itemized, and the report concludes with advice to beginners to go slow, doing only as much as can be done well, since nothing but the best production will pay, and it may safely be estimated that, besides the land, every acre of small fruit properly prepared, planted and brought to a bearing age will cost from $125 to $150, or their equivalent in honest work at $1.25 a day. Mr. Thayer's concluding counsel is: "Begin modestly, subscribe liberally to good papers, increase your plantation as experience is gained," and he promises to answer questions on particular points by mail or otherwise, or send short, plain instructions for growing small fruits, free, to any one who will send his name.

"All the world has agreed," said Downing in his *Horticulturist* some forty-five years ago, "that there is nothing more perfect of its kind than the rural architecture of England. The cottages of that country are as widely different in effect from those of any other as the Anglo-Saxon race differs from all else, civilized or barbarous. What this difference consists in there are, perhaps, few who take the trouble to analyze. Many persons suppose it to lie in pointed gables and high roofs. Still, these were not originally English, but were borrowed from Flanders, yet the Flemish cottages have little or none of the peculiar beauty which charms us in those of England. Others have imagined that it is something especially becoming in the features of the English landscape itself. Yet this can hardly be true, since we have seen faithful copies of the English cottage built in this country in equally picturesque scenery without producing upon the mind the same impression as the original edifice. The secret charm of the English cottage lies, we imagine, in its home-expression and its rurality. . . . The English cottage, even of the humblest class, is surrounded by trees, embowered in vines and creepers and hedged about with shrubs to a degree quite unknown in any other country. The love of trees and flowers is a universal passion in that country, and man, woman and child, among the cottagers, take an especial pride in the green adornments of their home. Slips and roots find their way from the pleasure-grounds of the nobleman's mansion to the humble garden of the cottage; and there is a personal and individual care bestowed upon them, even by those who have scarcely any other of the refinements of life, that neither the people of the Continent nor of this country have, as yet, any positive share of. The effect of all this taste is to spread a beautiful drapery about the rural cottages of England that renders what would otherwise be scarcely more than rude cabins little gems of rural and picturesque beauty. Indeed, strip most of the loveliest cottages of England of their sylvan and floral enrichment and they would absolutely lose their whole power of charming."

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